

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Amended) An optical device for focusing light emitted from a light-generating source of a dental instrument, the optical device comprising:
 - a lens having a first end that is substantially flat and a second end that is curved, wherein the substantially flat first end is configured for receiving light from the light-generating source, and wherein the curved second end is configured for focusing the light received by the first end;
 - means for holding the first end of the lens adjacent to the light-generating source and for protecting the lens from contact; and
 - ~~means for protecting the lens from contact,~~
 - wherein the means for holding and ~~the means for protecting the lens~~ comprise a transparent shield having means for removable attachment that is removably attachable to the dental instrument so that it can be removed together with the lens and discarded after use and which frictionally engages the lens.
2. (Previously Presented) An optical device as defined in claim 1, wherein the lens comprises at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.
3. (Previously Presented) An optical device as defined in claim 1, wherein at least a portion of the second end of the lens has an aspheric curvature.

4. (Previously Presented) An optical device as defined in claim 3, wherein the aspheric curvature comprises at least one of a hyperbolic curvature, an elliptical curvature, and a parabolic curvature.

5. (Previously Presented) An optical device as defined in claim 1, wherein at least a portion of the second end has a hemispherical curvature.

6. (Cancelled)

7. (Cancelled)

8. (Previously Presented) An optical device as defined in claim 1, wherein the transparent shield protects the lens from making contact with light-curable compounds while allowing light from the light-generating source to pass through the shield.

9. (Previously Presented) An optical device as defined in claim 8, wherein the transparent shield comprises a conical portion having an apex.

10. (Previously Presented) An optical device as defined in claim 9, wherein the second end of the lens focuses light from the light-generating source into a column of light having a diameter of about 8 mm at a distance of about 3 mm to about 5 mm from the apex of the transparent shield.

11. (Original) An optical device as defined in claim 1, wherein the light-generating source comprises an LED.

12. (Cancelled)

13. (Amended) An optical device as defined in claim ~~43~~¹², wherein the lens and the transparent shield each comprise at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.

14. (Amended) An optical device as defined in claim ~~43~~¹³, wherein the shape of the second end of the lens is at least one of hyperbolic, ellipsoidal, and parabolic.

15. (Previously Presented) An optical device as defined in claim 14, wherein the lens focuses the light entering the first end of the lens into a column of light having a diameter of about 8 mm at a distance of about 3 mm to about 10 mm away from the second end of the lens.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Amended) A dental curing apparatus~~light generating and focusing assembly~~ as defined in claim 4418, wherein the lens and the transparent shield comprise at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.

20. (Amended) A dental curing apparatus~~light generating and focusing assembly~~ as defined in claim 4418, wherein at least a portion of the second end of the lens is aspheric and is shaped so that it is formed into at least one of a hyperbolic, ellipsoidal, and parabolic shape.

21. (Amended) A dental curing apparatus~~light generating and focusing assembly~~ as defined in claim 4418, wherein at least a portion of the second end of the lens is hemispherical.

22. (Cancelled)

23. (Amended) A dental curing apparatus~~light generating and focusing assembly~~ as defined in claim 4422, further including a gap between the lens and LED light source~~light-emitting diode~~ such that they are not in abutting contact.

24. (Cancelled)

25. (Amended) A dental curing apparatus~~light generating and focusing assembly~~ as defined in claim 4424, wherein the lens is held by the transparent shield so that the lens is removably attached to the extension arm along with the transparent shield.

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Amended) A dental curing apparatus~~light~~ as defined in claim ~~45~~34, wherein the lens comprises a first side that is substantially flat and an opposite side that is substantially curved.

35. (Amended) A dental curing apparatus~~light~~ as defined in claim 34, wherein the substantially flat side of the lens is oriented toward the LED light ~~generating~~ source.

36. (Cancelled)

37. (Amended) A dental curing apparatus~~light~~ as defined in claim ~~35~~36, wherein the transparent shield holds the lens adjacent to the LED light ~~generating~~ source.

38. (Previously Added) A dental curing light as defined in claim 36, wherein the lens and transparent shield comprise a plastic material.

39. (Amended) A dental curing apparatus~~light~~ as defined in claim ~~45~~36, wherein the means for removable attachment of the transparent shield ~~is threadably attached~~ to the extension arm comprises a threaded attachment.

40. (Amended) A dental curing ~~apparatus~~^{light} as defined in claim ~~45~~³⁶, wherein the transparent shield comprises a conical portion having an apex.

41. (Cancelled)

42. (Cancelled)

43. (New) In a dental curing apparatus comprised of a dental instrument having a main body for supplying electrical power, an extension arm attached at one end to said dental instrument, and through which electrical power is connectable to an LED light source, an improved optical device assembly connected to an opposite end of the extension arm, the optical device assembly comprising:

a disposable assembly that may be removed and discarded after use on a patient, comprising,

a lens positioned so as to receive light from the LED light source, said lens having a curved end that focuses the received light into a desired focus of illumination suitable for curing dental compounds within a patient's mouth, and

a transparent shield which fits over and protects the lens, and into which the lens fits and is held, with the transparent shield in turn comprising means for removable attachment to the extension arm.

44. (New) A dental curing apparatus comprising:
- a dental instrument comprised of a main body for supplying electrical power;
 - an extension arm attached at one end to said dental instrument, and through which the electrical power is connectable to an LED light source; and
 - an optical device assembly connected to an opposite end of the extension arm, the optical device assembly comprising,
 - an LED light source connectable to the electrical power supplied from said main body of the dental instrument,
 - a lens positioned so as to receive light from the LED light source, said lens having a curved end that focuses the received light into a desired focus of illumination suitable for curing dental compounds within a patient's mouth, and
 - a rigid, conically shaped disposable transparent shield which fits over and protects the lens, and comprising means for removable attachment to the extension arm so that the transparent shield may be removed and discarded after use on a patient.

45. (New) A dental curing apparatus comprising:
- a dental instrument comprised of a main body for supplying electrical power;
 - an extension arm attached at one end to said dental instrument, and through which the electrical power is connectable to an LED light source; and
 - an optical device assembly connected to an opposite end of the extension arm, the optical device assembly comprising,
 - an LED light source connectable to the electrical power supplied from said main body of the dental instrument,
 - and a disposable assembly that may be removed and discarded after use on a patient, comprising,
 - a lens positioned so as to receive light from the LED light source, said lens having a curved end that focuses the received light into a desired focus of illumination suitable for curing dental compounds within a patient's mouth, and
 - a transparent shield which fits over and protects the lens, and into which the lens fits and is held, with the transparent shield in turn comprising a means for removable attachment to the extension arm.